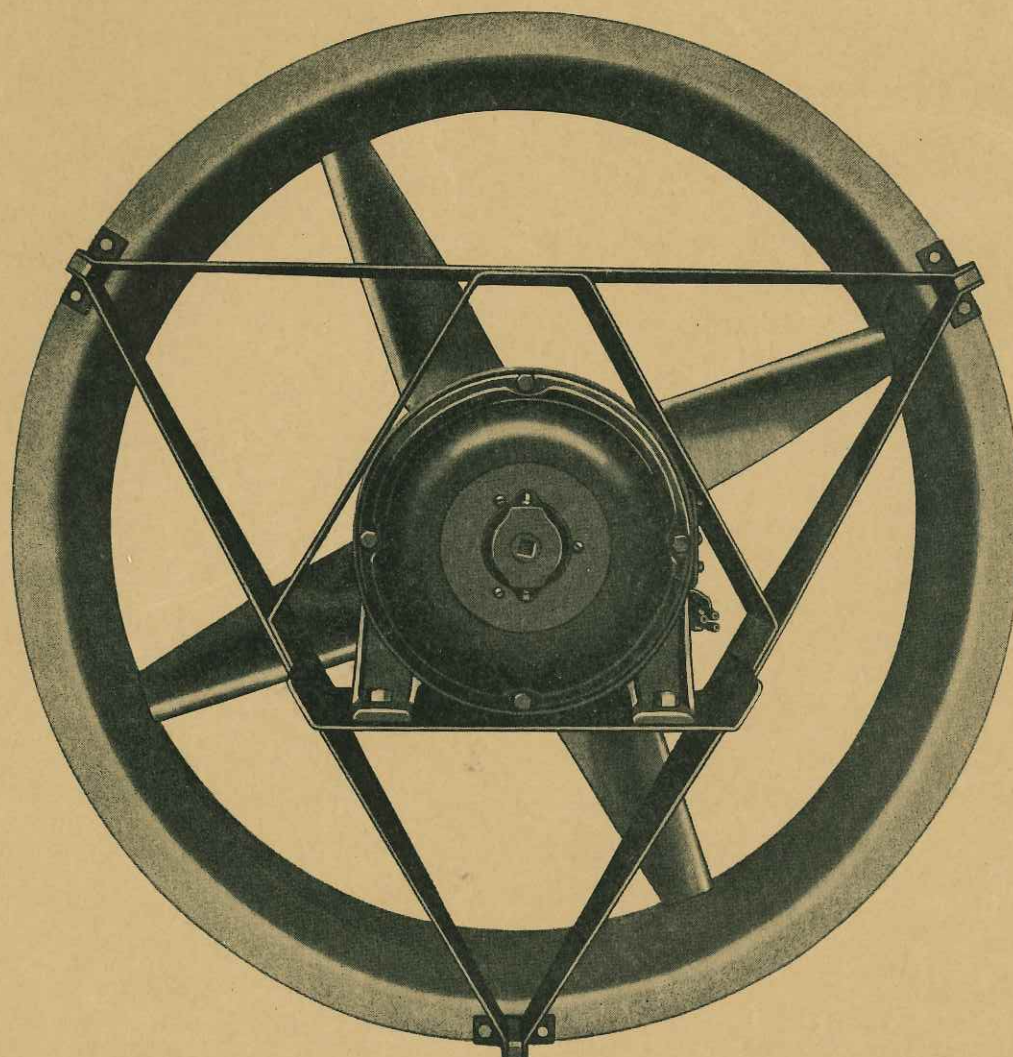


165-124

A BENDIX PRODUCT



VENTILATING EQUIPMENT

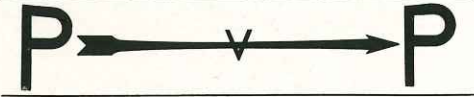
CATALOG NO. 1A

MANUFACTURED BY
BENDIX PRODUCTS CORPORATION
INDUSTRIAL FAN DIVISION
SOUTH BEND, INDIANA

GENERAL SALES AGENTS
AIR DEVICES CORPORATION
OFFICES IN PRINCIPAL CITIES
Main Offices: 105 W. Adams St., Chicago, Ill., U.S.A.

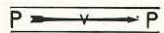
124

Bendix



Ventilating Units

GUARANTEE

Materials and workmanship used in the construction of Bendix  Ventilating Equipment are guaranteed to be of the highest quality.

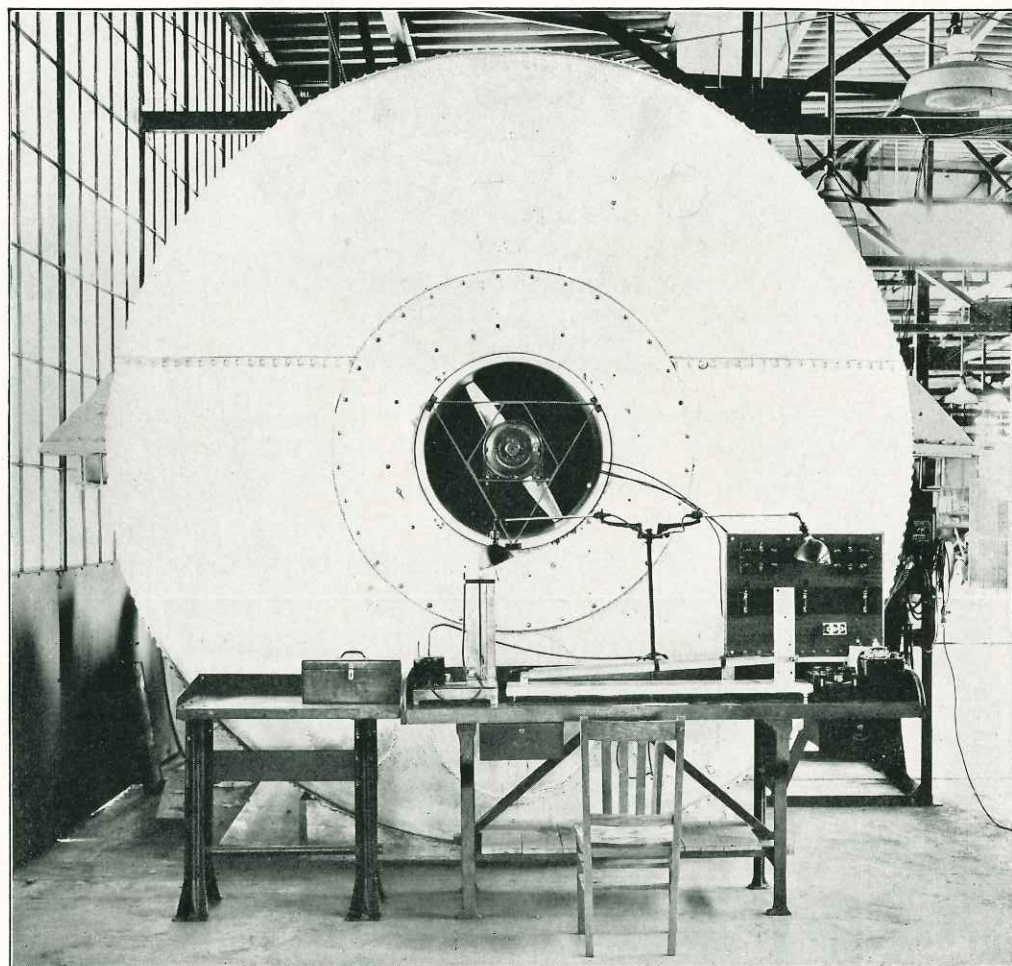
Should any mechanical defect develop within twelve (12) months from date of shipment of unit from our factory, it will be cheerfully repaired or replaced free of charge at our option. Such repairs will be made f.o.b. South Bend, Indiana. We do not accept responsibility for this guarantee where any alteration has been made in the unit, or where failure is the result of faulty installation.

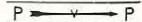
Expenses for repairs made outside our factory without proper written authority from us will not be approved for payment.

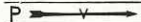
BENDIX PRODUCTS CORPORATION
INDUSTRIAL FAN DIVISION
SOUTH BEND, INDIANA



PRESSURE to VELOCITY to PRESSURE Thru a VENTURI-FLOW



Testing Bendix  Fans

Photograph showing a thirty inch diameter, two blade  Fan set up for tests. All measurements relating to air pressure and volume are checked by the use of two gauges of different types, and all power measurements are made with carefully calibrated electrical instruments.



Features of the New BENDIX PROPELLER FAN BLADE

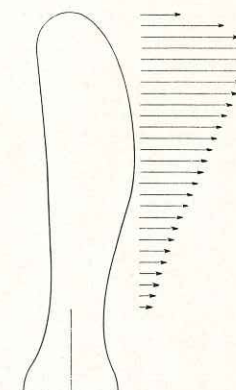
1. More Air Per Horsepower As a Result of—
Scientific Design to Produce Uniform Air Velocity Across The Entire Blade Area.
2. Uniform Product Insured by Accurate Manufacture of Blades as to—
A—Outline.
B—All Aerofoil Cross Sections of Blades.
C—Pitch Angles.

3. Safety—

A—Blades Manufactured From Forged Aluminum Alloy—Tensile Strength 55,000 to 60,000 Pounds Per Square Inch.

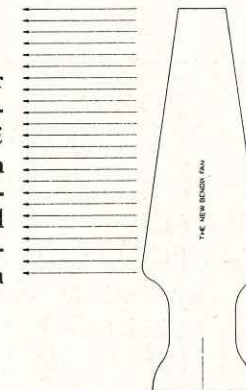
B—Steel Hubs Riveted in Blades Prevent Possibility of Blades Loosening on Motor Shaft.

Why the New BENDIX Fan Blade is More Efficient



Velocity of Air Leaving Fan Not Uniform, Resulting in Turbulence and Eddies, and Decreased Efficiency.

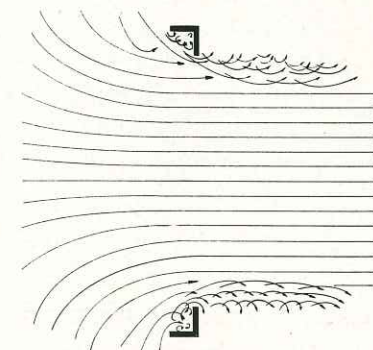
Conventional Propeller Fan Blade



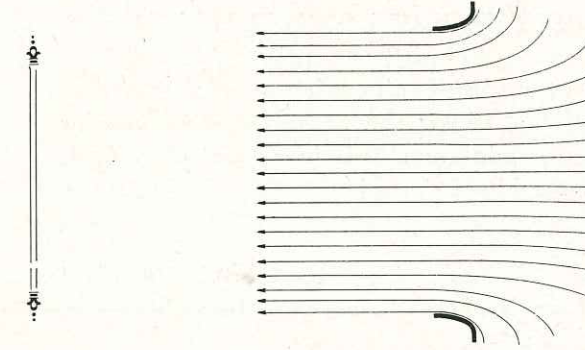
Velocity of Air Leaving Fan Uniform At All Radii—Resulting in Smooth Flow Without Turbulence and Eddies, and Consequently Maximum Efficiency.

New Bendix Propeller Fan Blade

Why Venturi Ring is More Efficient



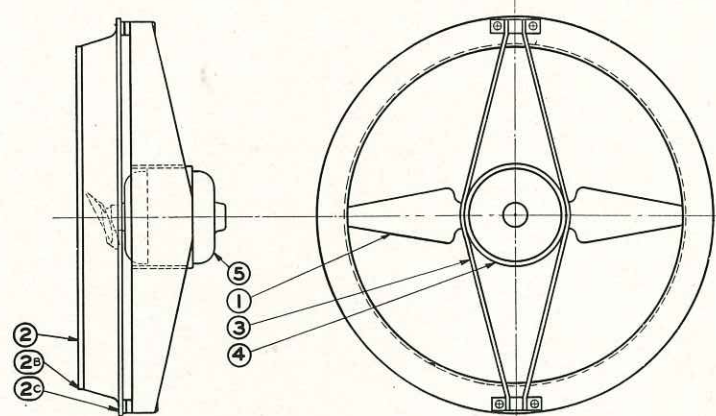
Angle Ring—Eddies Caused By Edges of Ring Using Power Uselessly.



Venturi Ring—Smooth Airflow With No Eddies To Use Power Uselessly.



Features of the New Bendix Ventilating Units



Sizes Under 30 Inches Diameter

1. NEW BENDIX FAN BLADES—
UNIFORM AIR VELOCITY.
MORE AIR PER HORSEPOWER.

2. NEW BENDIX VENTURI-FLOW INTAKE AND
MOUNTING RING—

(a) Designed like the intake of an aerodynamic wind tunnel. Prevents back flow through and around blade tips. Venturi wind tunnel shape causes air to enter fan without eddies, thereby *Increasing Air Delivered By Fan*.

(b) Ring mounts flat and smoothly against a wall. No projecting surfaces to collect dust and dirt, therefore *Easy To Keep Clean*.

(c) Cylindrical end for *Easy Attachment To Ducts*.

3. NEW BENDIX PLATE GIRDER MOTOR SUPPORT—*Double plate girder* construction for strength. Each plate deep in the dimension parallel to airflow for strength, but thin in the dimension perpendicular to airflow for minimum resistance to airflow. Unit can be mounted in any position, except blowing downward.

4. MOTOR MOUNTING RING—Cylindrical rolled metal ring welded between girder plates insures—

- (a) Rigidity in motor mounting.
- (b) Minimum resistance to airflow.
- (c) Minimum surface to collect dirt.

5. MOTORS—*Totally enclosed, wool packed sleeve bearing motors* for electrical circuits of any characteristics. All motors especially designed for fan service. *All Motors Guaranteed Against Defective Workmanship Or Material For One Year.*

6. BOLTS—Heavily cadmium plated bolts throughout *Resist Rust*.

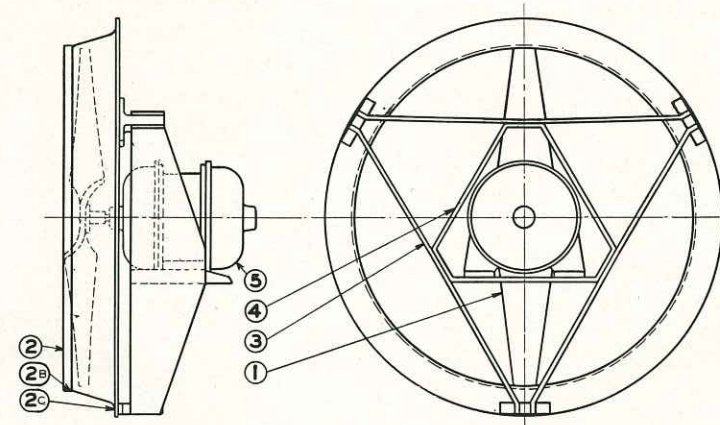
7. RUST and CORROSION—The entire unit is rust resisting, and in general acid resisting. Where severe acid conditions exist special protective finishes will be supplied.

8. NOISE—The use of the venturi Intake Ring which guides the air smoothly and uniformly into the fan, and the motor support which creates practically no disturbance in the airflow, result in the elimination of blade noise caused by non-uniform airflow. The use of wool packed sleeve bearing motors which are standard equipment on these units, eliminates the noise which sometimes develops in ball bearing motors.

9. PERFORMANCE—All figures given for the performance of the various units are the results of actual tests made in the plant of The Bendix Products Corporation, South Bend, Indiana, with modern testing equipment.



Features of the New Bendix Ventilating Units



Sizes 30 Inches Diameter and Larger

1. NEW BENDIX FAN BLADES—
UNIFORM AIR VELOCITY
MORE AIR PER HORSEPOWER.

2. NEW BENDIX VENTURI-FLOW IN-
TAKE AND MOUNTING RING—

(a) Designed like the intake of an aerodynamic wind tunnel. Prevents back flow through and around blade tips. Venturi wind tunnel shape causes air to enter fan without eddies, thereby *Increasing Air Delivered By Fan*.

(b) Ring mounts flat and smoothly against a wall. No projecting surfaces to collect dust and dirt, therefore *Easy To Keep Clean*.

(c) Cylindrical end for *Easy Attachment To Ducts*.

3. NEW BENDIX PLATE GIRDER MOTOR SUPPORT—*Triangulated plate girder* construction results in maximum strength. Each plate deep in the dimension parallel to airflow for strength, but thin in the dimension perpendicular to airflow for minimum resistance to airflow. *Unit Can Be Mounted In Any Position*.

4. MOTOR MOUNTING—Triangular rolled metal mounting welded between girder plates insures—

- (a) Rigidity in motor mounting.
- (b) Minimum resistance to air flow.
- (c) Minimum surface to collect dirt.

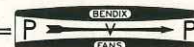
5. MOTORS—Totally enclosed, ball bearing, N.E.M. A. frame, motors for electrical circuits of any characteristics are furnished on units of 30" diameter and larger. *All Motors Guaranteed Against Defective Workmanship Or Material For One Year.*

6. BOLTS—Heavily cadmium plated bolts throughout *Resist Rust*.

7. RUST AND CORROSION—The entire unit is rust resisting, and in general acid resisting. Where severe acid conditions exist special protective finishes will be supplied.

8. NOISE—The use of the venturi Intake Ring which guides the air smoothly and uniformly into the fan, and the motor support which creates practically no disturbance in the airflow, result in the elimination of blade noise caused by non-uniform airflow.

9. PERFORMANCE—All figures given for the performance of the various units are the results of actual tests made in the plant of The Bendix Products Corporation, South Bend, Indiana, with modern testing equipment.



Bendix Two Blade Propeller Fans

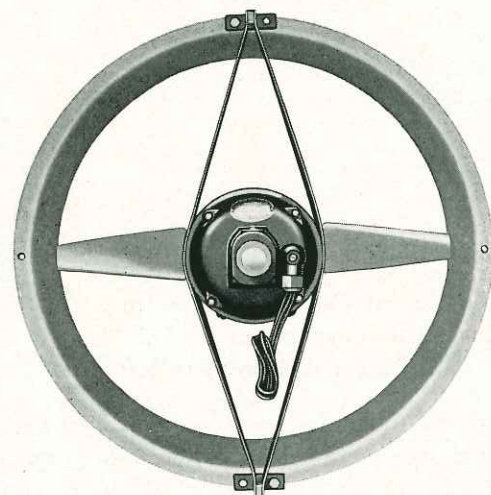
Recommended Applications:

Two Blade Units are recommended for exhausting or blowing air against low static pressures, and for circulating air inside large rooms.

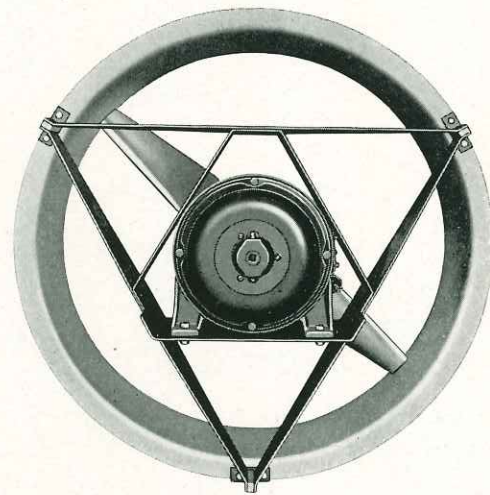
Examples of the proper use of these fans are:

1. Exhausting air from rooms on the sides of buildings away from the direction of prevailing winds.

2. Blowing outside air directly into a room through a wall or through a short length of duct.
3. Circulating air in a closed room to speed up drying operations or to maintain even temperature throughout room.
4. Blowing cooling air on hot objects which must be cooled quickly.
5. Circulating air in a cold room to hasten the freezing of ice cream, frozen specialties, and to cool milk.



Two Point Suspension
Style 2



Three Point Suspension
Style 3

FOR USE ON 60 CYCLE AND DIRECT CURRENT CIRCUITS

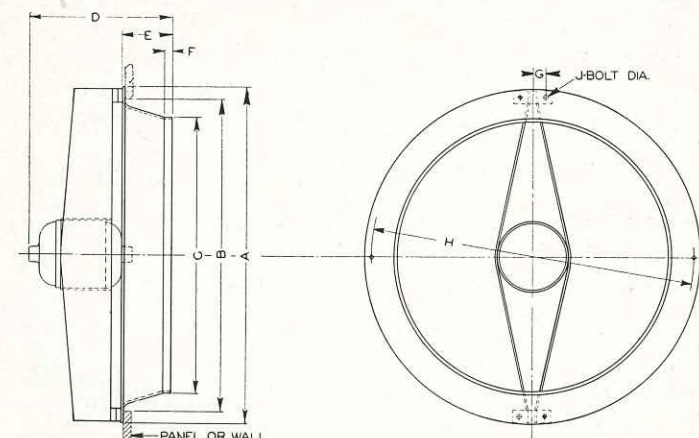
Cat. No.	Style	Fan Dia.	R.P.M.	Motor H. P.	Free Del'y	PERFORMANCE C. F. M.						
						STATIC PRESSURE—INCHES OF WATER						
						.05	.10	.15	.20	.30	.40	50
M-1	2	16	1725	1/20	1660	1520	1230	800	.....	.....	.....	.....
M-2	2	20	1725	1/8	3020	2890	2730	2490	2070	340	.....	.....
M-3	2	24	1725	1/4	5000	4750	4500	4200	3800	2600	1000	.....
M-4	2	28	1725	1/2	6570	6500	6400	6200	5950	5050	3700	2350
M-5	3	30	1725	3/4	10150	9950	9650	9300	8850	7700	6250	4850
M-6	3	36	1125	1/2	11000	10300	9200	7900	6700	4300	.....	.....
M-7	3	36	1725	1.5	17000	16650	16200	15600	14800	13280	11700	10150

FOR USE ON 25 CYCLE AND 50 CYCLE CIRCUITS

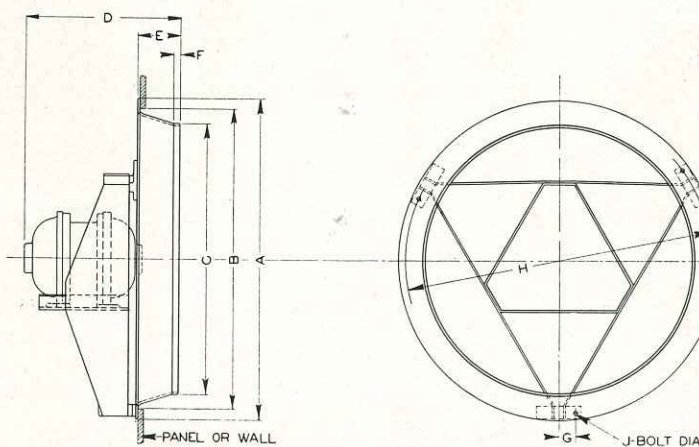
M-21	2	16	1425	1/30	1160	.....	.....	.....	.....	.....	.....	.....
M-22	2	20	1425	1/15	2420	2250	2000	1300	.....	.....	.....	.....
M-23	2	24	1425	1/6	4190	3930	3570	3100	2400	300	.....	.....
M-24	2	28	1425	1/4	5350	5240	5050	4700	4100	2525	.....	.....
M-25	3	30	1425	1/2	8360	8100	7650	7120	6400	4700	3100	.....
M-26	3	36	1425	1.0	14100	13500	12750	11800	10850	9000	7100	5000



Bendix Two Blade Propeller Fans



Style 2



Style 3

TWO BLADE

Cat. No.	Style No.	Fan Dia.	H. P.	R.P.M.	D I M E N S I O N S — I N C H E S										Net Wt.	Appr Ship. Wt.
					A	B	C	D		E	F	G	H	J		
								A. C.	D. C.							
M-1	2	16	1/20	1725	19 ⁷ / ₈	18 ³ / ₈	16 ¹ / ₄	8 ³ / ₄	8 ⁵ / ₈	3	1 ¹ / ₂	25 ³² / ₃₂	19	3 ⁸ / ₈	22.0	57
M-2	2	20	1/8	1725	23 ⁷ / ₈	22 ³ / ₈	20 ¹ / ₄	10 ¹ / ₈	9 ⁵ / ₈	3	1 ¹ / ₂	25 ³² / ₃₂	23	3 ⁸ / ₈	30.5	70
M-3	2	24	1/4	1725	27 ⁷ / ₈	26 ³ / ₈	24 ¹ / ₄	11 ⁵ / ₈	10 ³ / ₄	3	1 ¹ / ₂	25 ³² / ₃₂	27	3 ⁸ / ₈	48.5	92
M-4	2	28	1/2	1725	33 ⁷ / ₈	31 ⁷ / ₈	28 ¹⁶ / ₁₆	14	15 ³ / ₈	4 ⁵ / ₈	5 ⁸ / ₈	25 ³² / ₃₂	33	3 ⁸ / ₈	84.0	136
M-5	3	30	3/4	1725	35 ⁷ / ₈	33 ⁷ / ₈	30 ¹⁶ / ₁₆	15	17 ³ / ₄	4 ⁵ / ₈	5 ⁸ / ₈	1	34 ³ / ₄	3 ⁸ / ₈	114.0	172
M-6	3	36	1/2	1125	41 ⁷ / ₈	39 ⁷ / ₈	36 ¹⁶ / ₁₆	15 ¹ / ₄	16 ¹ / ₂	4 ⁵ / ₈	5 ⁸ / ₈	1	40 ³ / ₄	3 ⁸ / ₈	134.0	215
M-7	3	36	1-1/2	1725	41 ⁷ / ₈	39 ⁷ / ₈	36 ¹⁶ / ₁₆	17 ¹ / ₈	20	4 ⁵ / ₈	5 ⁸ / ₈	1	40 ³ / ₄	3 ⁸ / ₈	159.5	242
M-21	2	16	1/30	1425	19 ⁷ / ₈	18 ³ / ₈	16 ¹ / ₄	8 ³ / ₄	.....	3	1 ¹ / ₂	25 ³² / ₃₂	19	3 ⁸ / ₈	22.0	57
M-22	2	20	1/15	1425	23 ⁷ / ₈	22 ³ / ₈	20 ¹ / ₄	10 ¹ / ₈	.....	3	1 ¹ / ₂	25 ³² / ₃₂	23	3 ⁸ / ₈	30.5	70
M-23	2	24	1/6	1425	27 ⁷ / ₈	26 ³ / ₈	24 ¹ / ₄	11 ¹ / ₄	.....	3	1 ¹ / ₂	25 ³² / ₃₂	27	3 ⁸ / ₈	44.5	88
M-24	2	28	1/4	1425	33 ⁷ / ₈	31 ⁷ / ₈	28 ¹⁶ / ₁₆	12 ³ / ₄	.....	4 ⁵ / ₈	5 ⁸ / ₈	25 ³² / ₃₂	33	3 ⁸ / ₈	76.5	129
M-25	3	30	1/2	1425	35 ⁷ / ₈	33 ⁷ / ₈	30 ¹⁶ / ₁₆	15	.....	4 ⁵ / ₈	5 ⁸ / ₈	1	34 ³ / ₄	3 ⁸ / ₈	114.0	172
M-26	3	36	1.0	1425	41 ⁷ / ₈	39 ⁷ / ₈	36 ¹⁶ / ₁₆	16 ¹ / ₂	.....	4 ⁵ / ₈	5 ⁸ / ₈	1	40 ³ / ₄	3 ⁸ / ₈	141.5	224



Bendix Four Blade Propeller Fans

Recommended Applications:

Four Blade Units are recommended for exhausting or blowing air against moderate static pressures, and circulating air through systems including ducts, or other obstructions to free flow.

Examples of the Proper Use of 1725 R.P.M. Fans are:

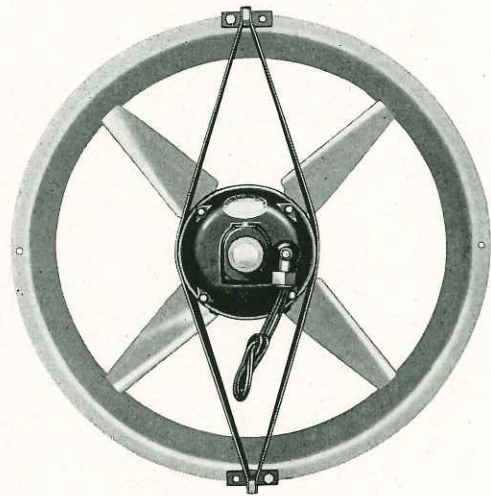
1. Exhausting air from rooms on the sides of buildings facing prevailing winds.
2. Exhausting air or other gases through long ducts.
3. Blowing air into rooms through long ducts.
4. Exhausting non-explosive gases or steam from

hoods through long ducts.

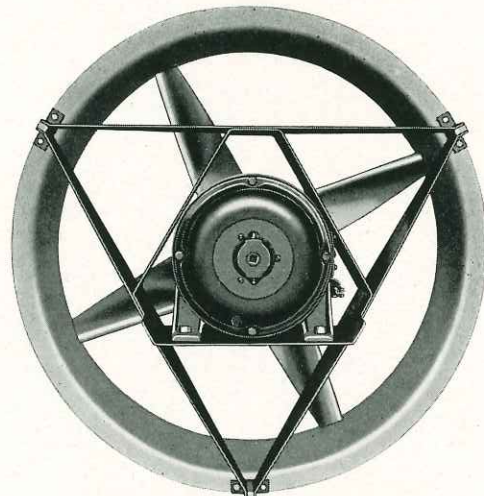
5. Blowing air through driers and similar equipment which interpose considerable resistance to airflow.

6. Circulating air in driers, and similar equipment in which the material being dried, and the arrangement of the machine causes a high resistance to air flow.

Fans running at 1125 R.P.M. should be used in all applications where noise is a prime consideration. For applications where the fan must operate against a high pressure, this usually necessitates the use of a larger size fan.



Two Point Suspension
Style 2



Three Point Suspension
Style 3

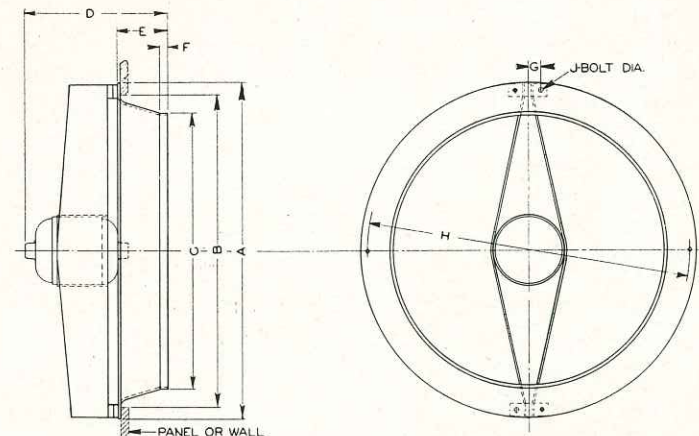
FOR USE ON 60 CYCLE AND DIRECT CURRENT CIRCUITS

Cat. No.	Style	Fan Dia.	R.P.M.	Motor H. P.	Free Del'y	PERFORMANCE—C. F. M.						
						STATIC PRESSURE—INCHES OF WATER						
						.10	.20	.30	.40	.60	.80	1.0
P-1	2	16	1125	1/20	1430	940	.....	.....	.....	.....	.....	.....
P-2	2	16	1725	1/10	2200	1920	1560	1100	.....	.....	.....	.....
P-3	2	20	1125	1/10	2640	2120	1260	.....	.....	.....	.....	.....
P-4	2	20	1725	1/4	3930	3730	3450	2960	2300	100	.....	.....
P-5	2	24	1125	1/8	4300	3460	2450	830	.....	.....	.....	.....
P-6	2	24	1725	1/2	6500	6070	5500	4900	4250	2750	100	.....
P-7	2	28	1125	1/3	6600	6200	5100	3400	1500	.....	.....	.....
P-8	2	28	1725	1.0	10,000	9900	9500	8900	8100	5900	3450	.....
P-9	3	30	1125	1/2	7700	7380	6650	5000	3450	.....	.....	.....
P-10	3	30	1725	1.5	11700	11400	11200	10900	10500	8800	6450	4300
P-11	3	36	1125	1.0	12000	11550	10800	9400	7300	4800	.....	.....
P-12	3	36	1725	2.0	17300	16900	16300	15700	14900	13000	11000	8100
P-13	3	36	1725	3.0	18200	17950	17600	17350	16650	15150	12600	10200

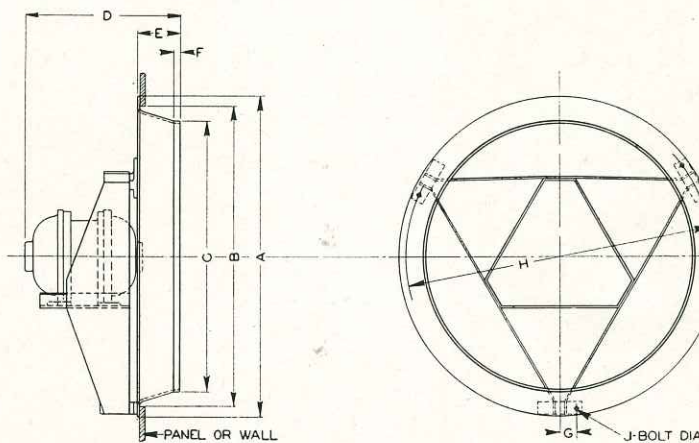
FOR USE ON 25 CYCLE AND 50 CYCLE CIRCUITS

P-21	2	16	1425	1/20	1650	.....	.....	.....	.....	.....	.....	.....
P-22	2	20	1425	1/6	3200	2720	2400	1500	50	.....	.....	.....
P-23	2	24	1425	1/4	5370	4800	4070	3230	2320	.....	.....	.....
P-24	2	28	1425	1/2	8450	8200	7630	6660	5320	2500	.....	.....
P-25	3	30	1425	1.0	9730	9520	9200	8700	7350	4850	1850	.....
P-26	3	36	1425	1.5	15200	14900	14450	13800	12850	10000	7500	.....

Bendix Four Blade Propeller Fans



Style 2



Style 3

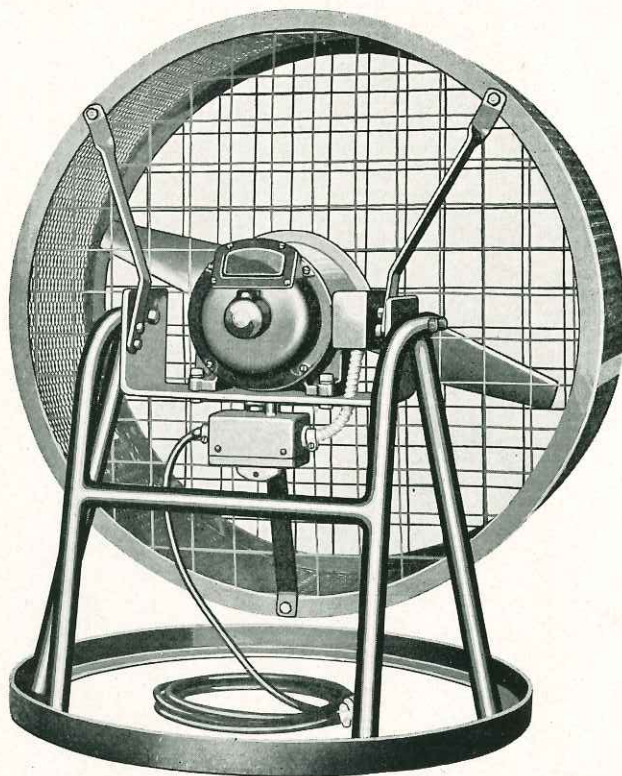
FOUR BLADE

Cat. No.	Style No.	Fan Dia.	H. P.	R.P.M.	D I M E N S I O N S — I N C H E S											Net Wt.	Appr Ship Wt.
					A	B	C	D		E	F	G	H	J			
								A. C.	D. C.								
P-1	2	16	1/20	1125	19 ⁷ / ₈	18 ³ / ₈	16 ¹ / ₄	10 ¹ / ₈	9 ⁵ / ₈	3	1 ¹ / ₂	25 ³² / ₃₂	19	3 ⁸ / ₈	29.0	64	
P-2	2	16	1/10	1725	19 ⁷ / ₈	18 ³ / ₈	16 ¹ / ₄	10 ¹ / ₈	9 ⁵ / ₈	3	1 ¹ / ₂	25 ³² / ₃₂	19	3 ⁸ / ₈	29.0	64	
P-3	2	20	1/10	1125	23 ⁷ / ₈	22 ³ / ₈	20 ¹ / ₄	11 ¹ / ₄	10 ³ / ₄	3	1 ¹ / ₂	25 ³² / ₃₂	23	3 ⁸ / ₈	41.5	81	
P-4	2	20	1/4	1725	23 ⁷ / ₈	22 ³ / ₈	20 ¹ / ₄	11 ⁵ / ₈	10 ³ / ₄	3	1 ¹ / ₂	25 ³² / ₃₂	23	3 ⁸ / ₈	45.5	85	
P-5	2	24	1/8	1125	27 ⁷ / ₈	26 ³ / ₈	24 ¹ / ₄	11 ¹ / ₄	10 ³ / ₄	3	1 ¹ / ₂	25 ³² / ₃₂	27	3 ⁸ / ₈	50.0	93	
P-6	2	24	1/2	1725	27 ⁷ / ₈	26 ³ / ₈	24 ¹ / ₄	13 ³ / ₄	15 ¹ / ₈	3	1 ¹ / ₂	25 ³² / ₃₂	27	3 ⁸ / ₈	68.0	111	
P-7	2	28	1/3	1125	33 ⁷ / ₈	31 ⁷ / ₈	28 ⁵ / ₁₆	14 ¹ / ₂	15 ³ / ₈	4 ⁵ / ₈	5 ⁸ / ₈	25 ³² / ₃₂	33	3 ⁸ / ₈	89.5	142	
P-8	2	28	1.0	1725	33 ⁷ / ₈	31 ⁷ / ₈	28 ⁵ / ₁₆	15 ¹ / ₂	16 ³ / ₈	4 ⁵ / ₈	5 ⁸ / ₈	25 ³² / ₃₂	33	3 ⁸ / ₈	105.5	158	
P-9	3	30	1/2	1125	35 ⁷ / ₈	33 ⁷ / ₈	30 ⁵ / ₁₆	15	17 ³ / ₄	4 ⁵ / ₈	5 ⁸ / ₈	1	34 ³ / ₄	3 ⁸ / ₈	119.0	177	
P-10	3	30	1-1/2	1725	35 ⁷ / ₈	33 ⁷ / ₈	30 ⁵ / ₁₆	17	19 ⁷ / ₈	4 ⁵ / ₈	5 ⁸ / ₈	1	34 ³ / ₄	3 ⁸ / ₈	150.0	208	
P-11	3	36	1.0	1125	41 ⁷ / ₈	39 ⁷ / ₈	36 ³ / ₁₆	16 ¹ / ₂	19 ¹ / ₄	4 ⁵ / ₈	5 ⁸ / ₈	1	40 ³ / ₄	3 ⁸ / ₈	146.5	229	
P-12	3	36	2.0	1725	41 ⁷ / ₈	39 ⁷ / ₈	36 ³ / ₁₆	17 ⁷ / ₈	20 ³ / ₄	4 ⁵ / ₈	5 ⁸ / ₈	1	40 ³ / ₄	3 ⁸ / ₈	175.5	258	
P-13	3	36	3.0	1725	41 ⁷ / ₈	39 ⁷ / ₈	36 ³ / ₁₆	17 ⁷ / ₈	20 ³ / ₄	4 ⁵ / ₈	5 ⁸ / ₈	1	40 ³ / ₄	3 ⁸ / ₈	175.5	258	

25 CYCLE—50 CYCLE

P-21	2	16	1/20	1425	19 7/8	18 3/8	16 1/4	10 1/8	8 3/4	3	1 1/2	25 3/32	19	3/8	22.0	57
P-22	2	20	1/6	1425	23 7/8	22 3/8	20 1/4	12 3/4	11 1/4	3	1 1/2	25 3/32	23	3/8	41.5	81
P-23	2	24	1/4	1425	27 7/8	26 3/8	24 1/4	12 3/4	11 5/8	3	1 1/2	25 3/32	27	3/8	50.0	93
P-24	2	28	1/2	1425	33 7/8	31 7/8	28 5/16	14 1/2	13 1/2	4 5/8	5/8	25 3/32	33	3/8	92.0	144
P-25	3	30	1.0	1425	35 7/8	33 7/8	30 5/16	17	16 1/2	4 5/8	5/8	25 3/32	34 3/4	3/8	148.5	207
P-26	3	36	1-1/2	1425	41 7/8	39 7/8	36 3/16	17 7/8	20	4 5/8	5/8	1	40 3/4	3/8	175.5	258

Bendix Floor Level Aerospots



Features of the Bendix Floor Level Aerospot:

1. Powerful blast due to the new Bendix Forged Aluminum Alloy Blade.
2. Sturdy Frame constructed of angle iron and wrought iron pipe.
3. Guard conforms to all state safety regulations and has negligible resistance to air flow.
4. Direction of blast can be adjusted from horizontal to vertical.
5. Easily portable, but can be mounted on side walls or ceiling.
6. Ball bearing motor will not freeze at temperatures of -20°F. to -30°F.

Applications:

1. Ice cream Hardening Rooms — Cuts hardening time.
2. Engine Testing Laboratories.
3. Dyeing Rooms.
4. Portable Unit for use by City Fire Departments in clearing Smoke out of Buildings.

FOR USE ON 60 CYCLE AND DIRECT CURRENT CIRCUITS

Cat. No.	Fan Dia.	R. P. M.	Motor H. P.	Free Del'y C. F. M.	Air Vel. F. P. M.	DIMENSIONS—INCHES				Net Wt. Lbs.	Approx. Ship. Wt. Lbs.
						Overall Height	Overall Width	Overall Depth	Hub Center to Floor		
E-1	20"	1725	1/8	3020	1385	29 $\frac{3}{8}$	23 $\frac{1}{2}$	23 $\frac{1}{2}$	18	100.0	150
E-2	24"	1725	1/4	5000	1590	32 $\frac{7}{8}$	26 $\frac{3}{4}$	23 $\frac{1}{2}$	18 $\frac{1}{2}$	115.0	170
E-3	28"	1725	1/2	6570	1540	34 $\frac{5}{8}$	30 $\frac{3}{4}$	23 $\frac{1}{2}$	19 $\frac{1}{8}$	134.0	190
E-4	30"	1725	3/4	10150	2060	36 $\frac{5}{8}$	34 $\frac{3}{4}$	23 $\frac{1}{2}$	19 $\frac{1}{8}$	157.5	215

FOR USE ON 25 CYCLE AND 50 CYCLE CIRCUITS

E-21	20"	1425	1/15	2420	1110	29 $\frac{3}{8}$	23 $\frac{1}{2}$	23 $\frac{1}{2}$	18	100.0	150
E-22	24"	1425	1/6	4150	1320	32 $\frac{7}{8}$	26 $\frac{3}{4}$	23 $\frac{1}{2}$	18 $\frac{1}{2}$	111.0	165
E-23	28"	1425	1/4	5350	1255	34 $\frac{5}{8}$	30 $\frac{3}{4}$	23 $\frac{1}{2}$	19 $\frac{1}{8}$	124.0	180
E-24	30"	1425	1/2	8360	1710	36 $\frac{5}{8}$	34 $\frac{3}{4}$	23 $\frac{1}{2}$	19 $\frac{1}{8}$	157.5	215

Bendix "Mobile" Aerospot

Features of Bendix "Mobile" Aerospot:

1. More powerful blast due to new Bendix Forged Aluminum Alloy Blade.
2. Sturdy frame constructed of heavy wrought iron pipe and steel, welded at all joints.
3. Wide face wheels make it easy to move—even over rough floors or railroad tracks.
4. Direction of blast can be adjusted through a wide range up or down.
5. Guard conforms to all state safety regulations, and has practically negligible resistance to air flow.
6. Totally enclosed motors insure against failure due to dust in bearings and windings.

Applications:

1. In Forge Shops, or Heat Treating Plants, around Blast Furnaces or Open Hearth Furnaces, in Foundries, or other hot spots, it increases Man Efficiency and Production by directing a cool blast of air on men working.
2. Brick Kilns, Hot Fire Boxes, etc., are quickly cooled to a working temperature by a well directed blast from one of these Aerospots, thereby shortening the time before work can be done in them.
3. Any hot spot in an Industrial Plant.



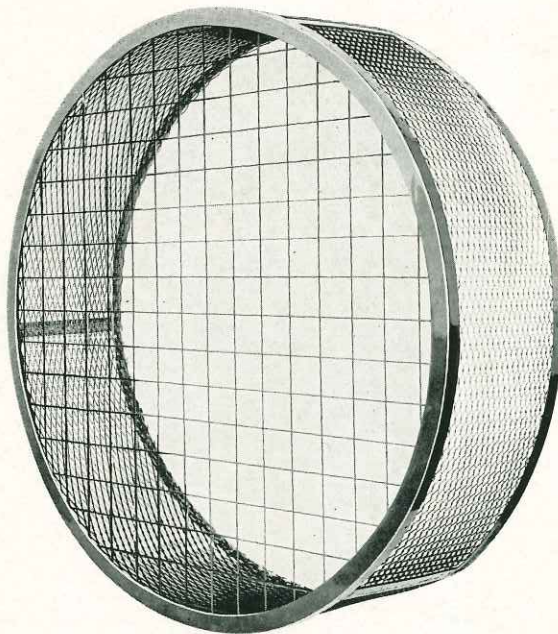
FOR USE ON 60 CYCLE AND DIRECT CURRENT CIRCUITS

Cat. No.	Fan Dia.	R. P. M.	Motor H. P.	Free Del'y C. F. M.	Air Vel. F. P. M.	DIMENSIONS—INCHES				Net Wt. Lbs.	Approx. Ship. Wt. Lbs.
						Overall Height	Overall Width	Overall Depth	Hub Center to Floor		
D-1	24"	1725	1/4	5000	1590	58 $\frac{1}{4}$	45	42	44	155	220
D-2	28"	1725	1/2	6570	1540	61	45	42	45	176	260
D-3	30"	1725	3/4	10150	2060	62	45	42	45	191	280
D-4	36"	1725	1.5	17000	2460	79	58 $\frac{1}{4}$	48 $\frac{3}{4}$	59	315	460

FOR USE ON 25 CYCLE AND 50 CYCLE CIRCUITS

D-21	24"	1425	1/6	4190	1320	58 $\frac{1}{4}$	45	42	44	150	215
D-22	28"	1425	1/4	5350	1255	61	45	42	45	170	255
D-23	30"	1425	1/2	8360	1710	62	45	42	45	185	275
D-24	36"	1425	1.0	14100	1915	79	58 $\frac{1}{4}$	48 $\frac{3}{4}$	59	310	455

Guards - Shutters - Panels



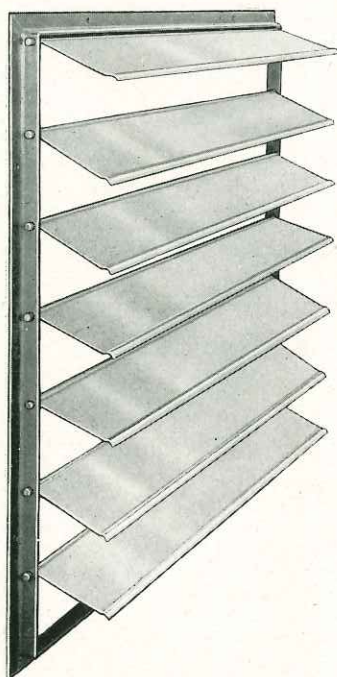
GUARDS

All guards are of all welded construction, using angle iron, 1/2 inch expanded metal, and 2 inch heavy wire mesh.

The outstanding features of these guards are:

1. **SAFETY**—Guaranteed to meet the Safety Regulations of any State.
2. **STRENGTH**—The all welded construction and materials used result in a guard of exceptional durability and strength.
3. **MINIMUM RESISTANCE TO AIRFLOW**—The use of 2 inch mesh in the front and back of these guards reduces resistance to air flow to a minimum.

These guards are standard equipment on all "Aero-spots", and may be purchased for use with any style unit when the installation is such as to require a guard.



SHUTTERS

All shutters are constructed using polished aluminum louvers mounted in a welded angle iron frame. This construction results in a very low resistance to the air being discharged by the fan.

PANELS

When desired, wood panels of any specified size, and finish, will be furnished for mounting fans.

RECOMMENDED THICKNESS FOR PANELS

Fan Size	Thickness
16" & 20"	1/2"
24" & 28"	5/8"
30" & 36"	3/4"

FACTS ABOUT VENTILATION

In selecting a fan for any particular installation, some of the most important factors to be considered are:

1. Capacity of fan, i.e., cubic feet of air to be delivered per minute.
2. The power required to drive the fan when delivering the required volume of air.
3. The mechanical features of the fan as determined by the condition of the installation.

Capacity of Fan

When a fan is to be used for ventilation purposes, the cubic feet per minute can be calculated, using the following table:

Air Supply for Ventilation

	Air Supply Per Occupant, Cu. Ft. Per Hour	No. of Renewals of Air Contents Per Hour	References
Hospital Wards	2700 to 3600		Billings
Hospital, Epidemic	5000		Carpenter
Schools	1800 to 2400		Legal Requirements
Prison Cells	500 to 750		Carpenter 1700
Prison Wards	350		
Barracks	3000		Billings
Water Closets	2400	10 to 20	Per fixture, Billings, Wolff's Practice
Living Rooms	700 to 1200	1 to 2	
Kitchens		8 to 12	Wolff's Practice
Auditoriums	1000 to 2000		Carpenter
Theaters	1500 to 1800		Snow-Nolan
Restaurants		5 to 6	Allen

The volumes given above may be reduced for rooms with very high ceilings when occupied for short periods only, and in general when leaky or not easily overheated. They should be increased where the conditions are unfavorable. Greater volumes or provision for increased air movement are required for summer.

Having determined the volume of air required, the proper fan may be selected. The proper fan for any particular installation depends also upon the type of installation and the location of the fan.

In general an exhaust fan will require slightly more power when moving a given quantity of air than will a blower fan. This is particularly true when the fan is located in the side of a building, and exhausts the air directly to the outside, since a wind may blow directly against the fan, and seriously reduce its ability to move air. In such cases, if the fan is to be mounted in a wall facing the direction of prevailing winds, the fan should be chosen which has the required delivery against a static head of 0.4 inch of water (this is roughly the equivalent of a 30-mile per hour wind). If, however, the fan is to be located in a wall facing away from the direction of prevailing winds, it is usually safe to select a fan of proper capacity based upon free delivery.

When conditions are such that the fan must move air through a system of ducts the friction head developed by the passage of the air through the ducts must be considered when selecting the fan. No figures can be given for this condition since the friction head developed depends upon the quantity of air to be moved through the ducts, the size and shape of the ducts, the total length of the duct system, the number of bends in the system, etc. Each case must be considered as an individual problem, and the friction head for the system must be calculated, or determined experimentally.

Power Required to Drive Fan

In general a blower fan will require slightly less power than an exhaust fan when delivering a given quantity of air under any

given set of conditions. The overall efficiency of any propeller type fan depends upon the design of its blades, and the method of mounting the blades with reference to the driving motor and its supports. All the fans listed in this catalog are designed to operate at or near the maximum efficiency possible under the conditions.

Mechanical Features to be Considered

The location in which a fan is to be used fixes its mechanical construction.

When a fan is to be mounted on a wall or in a duct with the motor shaft horizontal, the motor may be supported by either two or three arms. These arms should be rigid in order that they may not start vibrating in synchronism with any slight unbalance in the driving motor or fan. Such a condition will cause objectionable noise, and may lead to a fatigue failure of the motor support.

When a fan is to be mounted with its motor shaft vertical, particular attention should be given the thrust bearing in the motor, since this bearing must support the entire weight of the motor and fan. All Bendix P Units may be mounted blowing upward, but twenty-eight (28) inch units, and smaller must be equipped with ball bearing motors if unit is mounted to blow downward.

In installations where a fan is to be used to circulate air in a room, or where conditions necessitate mounting a fan within arms reach of the floor, the safety regulations of most guards furnished for use with Bendix P Units for such service, are designed to comply with the safety regulations of New York State. These guards are of such design as that it is impossible for a person to come in contact with the fan unless the guard has been removed.

Automatic Shutters

In all cases in which a fan is to be installed in an outside wall to exhaust air from a building, some form of automatic shutter should be installed to prevent the entrance of rain and dust when the fan is not in operation.

Such shutters should be of such design as cause the minimum resistance to the flow of air from the fan, since the failure of the shutters to operate freely will seriously reduce the volume of air moved by the fan.

Performance of Propeller Type Fans at Speeds Other Than That for Which Designed

The following formula will be found useful in determining the performance of a propeller type fan at any speed other than that for which designed:

$$(a) H.P._2 = \frac{(R.P.M._2)^3}{(R.P.M._1)^3} \times H.P._1$$

in which

H.P.₁ equals horsepower absorbed at designed speed
R.P.M.₁ equals revolutions per minute at designed speed
H.P.₂ equals horsepower absorbed at desired speed
R.P.M.₂ equals revolutions per minute at desired speed

$$(b) P_2 = \frac{(R.P.M._2)^2}{(R.P.M._1)^2} \times P_1$$

in which

P₁ equals pressure at R.P.M.₁
P₂ equals pressure at R.P.M.₂

$$(c) Q_2 = \frac{R.P.M._2}{R.P.M._1} \times Q_1$$

in which

Q₁ equals cubic feet per minute at R.P.M.₁
Q equals cubic feet per minute at R.P.M.

Friction Loss in Round Ducts in Inches of Water

Velocity Ft./Min.	DIAMETER OF PIPE IN INCHES							
	6	7	8	9	10	11	12	14
FRICTION LOSS IN INCHES OF WATER PER 100 FEET								
400	.0519	.0446	.0389	.0346	.0312	.0284	.026	.022
500	.081	.069	.061	.054	.049	.044	.040	.035
600	.129	.110	.097	.086	.077	.070	.064	.055
700	.159	.136	.119	.106	.096	.087	.079	.068
800	.208	.178	.156	.139	.125	.113	.104	.089
900	.263	.226	.198	.176	.158	.144	.131	.113
1000	.324	.279	.244	.217	.195	.177	.162	.139
1200	.470	.404	.352	.314	.282	.257	.235	.201
1400	.638	.548	.479	.426	.384	.349	.319	.274
1600	.835	.716	.626	.557	.502	.457	.418	.358
1800	1.058	.908	.794	.707	.636	.580	.530	.453
2000	1.300	1.114	.974	.867	.781	.710	.650	.556
2200	1.572	1.350	1.180	1.050	.945	.859	.786	.673
2400	1.880	1.614	1.410	1.256	1.130	1.028	.940	.804
2600	2.200	1.890	1.650	1.468	1.322	1.200	1.100	.940
2800	2.550	2.190	1.915	1.705	1.535	1.397	1.277	1.090
3000	2.930	2.510	2.195	1.955	1.760	1.600	1.464	1.253

Velocity Ft./-in.	DIAMETER OF PIPE IN INCHES								
	16	18	20	22	24	26	28	30	36
FRICTION LOSS IN INCHES OF WATER PER 100 FEET									
400	.019	.017	.0156	.014	.013	.012	.011	.010	.008
500	.030	.026	.024	.022	.020	.018	.017	.016	.013
600	.048	.043	.039	.035	.032	.030	.028	.026	.021
700	.059	.053	.048	.043	.040	.037	.034	.032	.026
800	.078	.069	.062	.057	.052	.048	.044	.042	.035
900	.098	.088	.079	.072	.066	.061	.056	.053	.044
1000	.121	.108	.097	.088	.081	.075	.069	.065	.054
1200	.176	.156	.141	.128	.118	.108	.100	.094	.078
1400	.238	.212	.191	.174	.160	.147	.137	.128	.110
1600	.312	.278	.250	.228	.209	.192	.179	.167	.139
1800	.395	.352	.317	.288	.265	.244	.226	.212	.177
2000	.485	.432	.389	.354	.325	.300	.278	.263	.216
2200	.587	.523	.471	.428	.394	.364	.336	.315	.262
2400	.702	.625	.563	.512	.471	.435	.402	.377	.314
2600	.810	.731	.658	.598	.550	.507	.470	.440	.366
2800	.954	.850	.764	.694	.638	.589	.546	.512	.425
3000	1.092	.974	.877	.796	.733	.675	.626	.586	.489

The above table is based upon the formulae adopted by the U. S. Navy Department for the Friction Loss in Ducts:

Formula for Round Ducts:

$$f = 0.0257 \frac{L}{D} (VP)$$

In which f = Pressure loss in inches of water.
 VP = Average velocity pressure, inches of water.
 L = Length in feet.
 D = Diameter of duct in feet.

Formula for Rectangular Ducts:

$$f = 0.01285 \frac{L}{ab} (VP)$$

In which a = Long side of duct in feet.
 b = Short side of duct in feet.

Friction in Elbows: For approximate calculations an elbow having a radius equal to one and one-half times the duct diameter may be considered as equal in friction loss to ten diameters of straight duct.



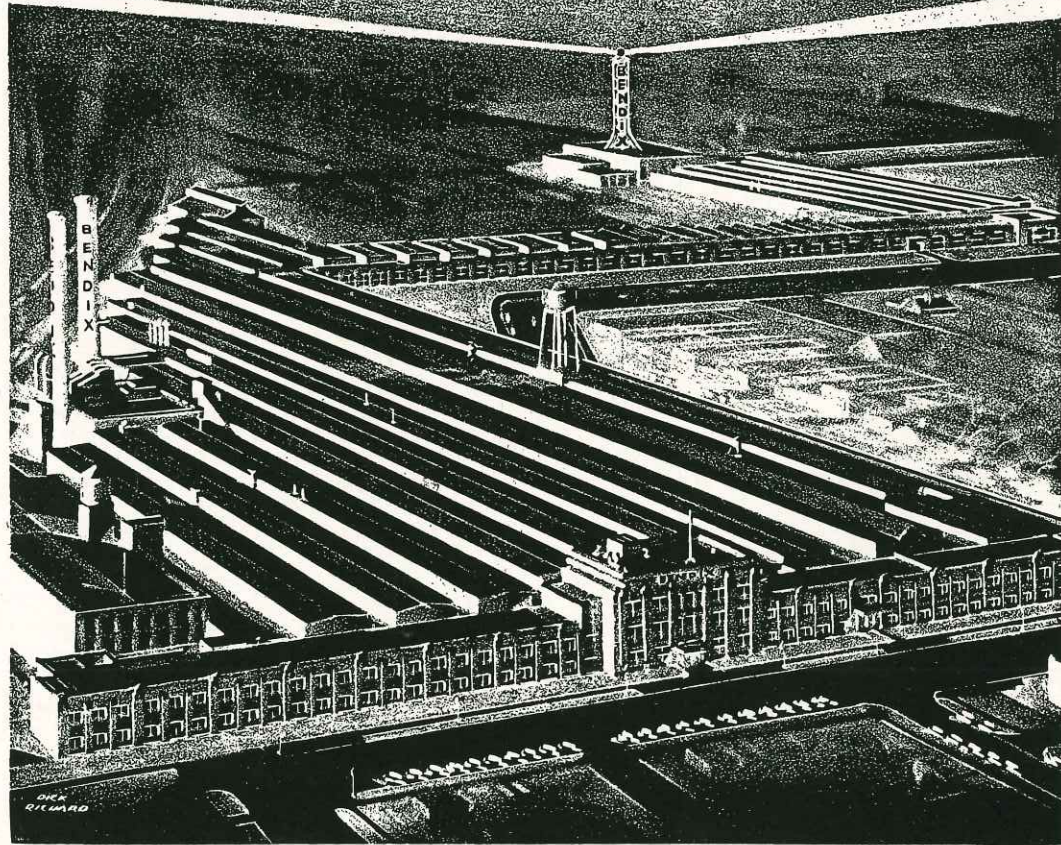
Area And Circumference Of Circles And Sides Of Squares Of Equal Areas

Diam. in Inches	AREA		CIRCUM- FERENCE IN FEET	One Side of a Square of Equal Area	Diam. in Inches	AREA		CIRCUM- FERENCE IN FEET	One Side of a Square of Equal Area
	Square Inches	Square Feet				Square Inches	Square Feet		
1	.7854	.0054	.2618	.89	51	2043	14.19	13.35	45.20
2	3.142	.0218	.5236	1.77	52	2124	14.75	13.61	46.08
3	7.069	.0491	.7854	2.66	53	2206	15.32	13.88	46.97
4	12.57	.0873	1.047	3.54	54	2290	15.90	14.14	47.86
5	19.63	.1364	1.309	4.43	55	2376	16.50	14.40	48.74
6	28.27	.1964	1.571	5.32	56	2463	17.10	14.66	49.63
7	38.48	.2673	1.833	6.20	57	2552	17.72	14.92	50.51
8	50.27	.3491	2.094	7.09	58	2642	18.35	15.18	51.40
9	63.62	.4418	2.356	7.98	59	2734	18.99	15.45	52.29
10	78.54	.5454	2.618	8.86	60	2827	19.63	15.71	53.17
11	95.03	.6600	2.880	9.75	61	2922	20.29	15.97	54.06
12	113.1	.7854	3.142	10.63	62	3019	20.97	16.23	54.91
13	132.7	.9218	3.403	11.52	63	3117	21.65	16.49	55.83
14	153.9	1.069	3.665	12.40	64	3217	22.34	16.76	56.72
15	176.7	1.227	3.927	13.29	65	3318	23.04	17.02	57.60
16	201.0	1.396	4.189	14.18	66	3421	23.76	17.28	58.49
17	227.0	1.576	4.451	15.06	67	3526	24.48	17.54	59.38
18	254.5	1.767	4.712	15.95	68	3632	25.22	17.80	60.26
19	283.5	1.969	4.974	16.84	69	3739	25.97	18.06	61.15
20	314.2	2.182	5.236	17.72	70	3848	26.73	18.33	62.04
21	346.3	2.405	5.498	18.61	71	3959	27.49	18.59	62.92
22	380.1	2.640	5.760	19.49	72	4072	28.27	18.85	63.81
23	415.5	2.885	6.021	20.38	73	4185	29.07	19.11	64.69
24	452.4	3.142	6.283	21.27	74	4301	29.87	19.37	65.58
25	490.9	3.409	6.545	22.15	75	4418	30.68	19.63	66.47
26	530.9	3.687	6.807	23.04	76	4536	31.50	19.90	67.35
27	572.5	3.976	7.069	23.93	77	4657	32.34	20.16	68.24
28	615.7	4.276	7.330	24.81	78	4778	33.18	20.42	69.15
29	660.5	4.587	7.592	25.70	79	4902	34.04	20.68	70.03
30	706.8	4.909	7.854	26.59	80	5027	34.91	20.94	70.89
31	754.8	5.241	8.116	27.47	81	5153	35.78	21.21	71.80
32	804.2	5.585	8.378	28.36	82	5281	36.67	21.47	72.69
33	855.3	5.940	8.639	29.25	83	5411	37.57	21.73	73.55
34	907.9	6.305	8.901	30.13	84	5542	38.48	21.99	74.45
35	962.1	6.681	9.163	31.02	85	5674	39.41	22.25	75.35
36	1017.9	7.069	9.425	31.90	86	5809	40.34	22.51	76.22
37	1075.2	7.467	9.686	32.79	87	5945	41.28	22.78	77.10
38	1134.1	7.876	9.948	33.68	88	6082	42.24	23.04	77.99
39	1194.5	8.296	10.21	34.56	89	6221	43.20	23.30	78.87
40	1256.6	8.727	10.47	35.45	90	6362	44.18	23.56	79.76
41	1320.3	9.168	10.73	36.33	91	6504	45.17	23.82	80.65
42	1385.4	9.621	10.99	37.22	92	6648	46.16	24.09	81.54
43	1452.2	10.08	11.26	38.11	93	6793	47.17	24.35	82.42
44	1520.5	10.56	11.52	38.99	94	6940	48.19	24.61	83.31
45	1590.4	11.04	11.78	39.88	95	7088	49.22	24.87	84.19
46	1661.9	11.54	12.04	40.76	96	7238	50.27	25.13	85.08
47	1734.9	12.05	12.30	41.65	97	7390	51.32	25.39	85.96
48	1809.6	12.56	12.57	42.58	98	7543	52.38	25.66	86.85
49	1885.7	13.09	12.83	43.42	99	7698	53.46	25.92	87.74
50	1963.5	13.64	13.09	44.31	100	7854	54.54	26.18	88.63



BENDIX PRODUCTS

AUTOMOBILE . . . AVIATION
MARINE . . . INDUSTRIAL



BUILDING for future needs is an unchanging Bendix policy; developing perseveringly each unit of product; achieving constantly increasing efficiency in their manufacture, with the full knowledge that industry and transportation's demands will tax our every resource to capacity.

Bendix Mechanical Brakes—Bendix Automatic Clutch Control—B-K Vacuum Power Brakes—Automatic Non-Stallable Idle Carburetor—Automatic Choke Control—Cowdrey Brake Testers—Stromberg Carburetors—Airplane Wheels and Brakes—Bendix P — v — P Ventilating Equipment—Bendix Drive—Bendix Startix—Bendix Westinghouse Air Brake Systems—Lockheed Hydraulic Brakes—Scintilla Magnetos—Eclipse Aviation Starters and Generators—Pioneer Instruments—Friez Weather Instruments.

